

04-01-2005 15:31

From-PILLSBURY WINTHROP

+703-905-2500

T-082 P.007/022 F-345

VAN DER WERF et al. -- 10/618,264
Client/Matter: 081468-0304800

IN THE DRAWINGS:

Please amend Figures 1 and 3 as shown in the attached replacement sheets of such figures.

VAN DER WERF et al. -- 10/618,264
 Client/Matter: 081468-0304800

REMARKS

Claims 1-19 are pending. By this Amendment, Figures 1 and 3 are amended; the specification is amended; and claims 1, 8 and 13 are amended. Reconsideration in view of the amendments and following remarks is respectfully requested.

Figure 3 has been amended to include reference character AB2 disclosed in paragraph [0038]. In addition, Figure 1 has been amended to include the control unit, or controller, disclosed in paragraph [0048].

Claims 1, 4, 9, 13 and 16 were objected to. The objection is respectfully traversed.

Applicants respectfully request the Examiner to clarify the objection. In particular, the Examiner is respectfully requested to provide a basis for the objection in either 35 U.S.C. or 37 C.F.R. In the absence of such a basis, it is respectfully submitted that the objections must be withdrawn.

In order to advance prosecution of the application, Applicants provide the following responses. With respect to the Examiner's assertion that it is not clear if the reflector alignment system of claim 1 and the reflector aligning means of claim 13 include a reflector or if the system or means are used to align reflectors, it is respectfully submitted that it is clear from claim 1 that the reflector alignment is configured to direct an alignment beam of radiation through the projection system to measure apparent relative positions of a first reference mark provided in a fixed position on a patterning device side of the projection system and a second reference mark provided in a fixed position on a substrate side of the projection system and that it is clear from claim 13 that the reflector aligning means is for directing an alignment beam of radiation through the projecting means to measure an apparent relative positions of a first reference mark provided in fixed position on a patterning means side of the projecting means and a second reference mark provided in a fixed position a substrate side of the projecting means. With respect to the Examiner's allegation that structural relationship between reflectors and lithographic projection apparatus is not clear, it is respectfully submitted that it is clear from claim 1 that the lithographic projection apparatus comprises the reflector alignment system and it is clear from claim 13 that the lithographic projection apparatus comprises the reflector aligning means.

With respect to the Examiner's objection to claims 4, 9 and 16, and the determination that paragraph [0042] of the application does not provide sufficient enablement to make or use the invention, it is respectfully submitted that the Examiner has not met the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention,

VAN DER WERF et al. -- 10/618,264
 Client/Matter: 081468-0304800

as required by MPEP §2164.04. In particular, it is respectfully noted that the Examiner has not analyzed even one of the at least eight factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement, as set forth in MPEP §2164.01(a). As clearly stated in that MPEP Section, the Examiner's analysis must consider all the evidence related to each of these factors, and any conclusion of non-enablement must be based on the evidence as a whole. The Examiner is respectfully requested to perform the analysis of each of the eight factors set forth in the MPEP, or withdraw the objection.

Claims 1, 2, 5, 6, 8, 10, 11, 13, 14, 17 and 18 were rejected under 35 U.S.C. §102(b) over Oshino (U.S. Patent 6,208,707). The rejection is respectfully traversed.

Claim 1 recites a lithographic projection apparatus including, *inter alia*, a reflector alignment system configured to direct an alignment beam of radiation through the projection system to measure apparent relative positions of a first reference mark provided in a fixed position on a patterning device side of the projection system and a second reference mark provided in a fixed position on a substrate side of the projection system.

The Office Action on page 3, alleges that Oshino disclose in column 4, lines 47-59, a reflector alignment system 81, 82, 83, 84, 85, 86 to measure positions of a first reference mark and a second reference mark. However, it is respectfully submitted that Oshino does not disclose or suggest a reflector alignment system configured to direct an alignment beam of radiation through the projection system to measure apparent relative positions of a first reference mark provided in a fixed position on a patterning device side of the projection system and a second reference mark provided in a fixed position on a substrate side of the projection system, as recited in claim 1.

Oshino discloses in column 6, lines 14-32, that the alignment detection devices 81 and 82 detect light 91 reflected or scattered from the alignment marks on the mask 4 and light 93 reflected or scattered by the alignment marks on the wafer, respectively. However, as clearly disclosed in column 5, lines 45-47, the mask 4 and the wafer 6 are synchronously scanned at respective constant speeds during exposure. In other words, the mask 4 and the wafer 6, and their corresponding marks, are scanned, or moved, relative to each other. The marks on the mask 4 and the wafer 6 are not provided at a fixed position, as recited in claim 1.

Accordingly, Oshino cannot anticipate or render obvious claim 1.

VAN DER WERF et al. -- 10/618,264
Client/Matter: 081468-0304800

Claims 2, 5 and 6 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 1 and for the additional features recited therein.

Claim 8 recites a device manufacturing method including, *inter alia*, detecting positional errors or disturbances of the reflectors in the projection system by directing an alignment beam through the projection system to measure apparent relative positions of first and second marks provided at fixed positions respectively at a patterning device side and substrate side of the projection system.

As discussed above, there is no disclosure or suggestion by Oshino of first and second reference marks provided at fixed positions. Accordingly, Oshino cannot anticipate or render obvious claim 8.

Claims 10 and 11 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 8 and for the additional features recited therein.

Claim 13 recites a lithographic projection apparatus including, *inter alia*, reflector aligning means for directing an alignment beam of radiation through the projecting means to measure apparent relative positions of a first reference mark provided in a fixed position on a patterning means side of the projecting means and a second reference mark provided in a fixed position on a substrate side of the projecting means.

As discussed above, there is no disclosure or suggestion by Oshino of first and second reference marks provided at fixed positions. Accordingly, Oshino cannot anticipate or render obvious claim 13.

Claims 14, 17 and 18 recite additional features of the invention and are allowable for the same reasons discussed above with respect to claim 13 and for the additional features recited therein.

Reconsideration and withdrawal of the rejection of claims 1, 2, 5, 6, 8, 10, 11, 13, 14, 17 and 18 over Oshino are respectfully requested.

Claims 1, 7, 8, 12, 13 and 19 were rejected under 35 U.S.C. §102(b) over Nishi (U.S. Patent 4,856,905). The rejection is respectfully traversed.

Nishi fails to anticipate or render obvious each of independent claims 1, 8 and 13 for the same reasons discussed above with respect to Oshino. In particular, Nishi clearly discloses in column 5, lines 61-67, that the wafer stage 22 is moved by a servo motor 76 in such a manner that the fiducial mark FM comes close to the focusing position of the light

VAN DER WERF et al. -- 10/618,264
Client/Matter: 081468-0304800

beams, so that the reticle mark RM is scanned by the light beams by means of the function of the scanner 30, in the same manner and simultaneously with the scanning of the reticle R. In other words, neither the fiducial mark FM nor the reticle mark RM of Nishi is provided at a fixed position. Accordingly, Nishi cannot anticipate or render obvious any of independent claims 1, 8, and 13.

Claims 7, 12 and 19 recite additional features of the invention and are allowable for the same reasons discussed above with respect to independent claims 1, 8 and 13, respectively, and for the additional features recited therein.

Reconsideration and withdrawal of the rejection of claims 1, 7, 8, 12, 13 and 19 over Nishi are respectfully requested.

Claims 3 and 15 were rejected under 35 U.S.C. §103(a) over Oshino in view of Nishi et al. (U.S. Patent Application Publication 2004/0032575 A1) and claims 4, 9 and 16 were rejected under 35 U.S.C. §103(a) over Oshino in view of Dirksen et al. (U.S. Patent 5,485,272). The rejections are respectfully traversed.

Claims 3, 4, 9, 15 and 16 recite additional features of the invention and are allowable for the same reasons discussed above with respect to independent claims 1, 8 and 13, and for the additional features recited therein. In addition, it is respectfully submitted that Nishi et al. and Dirksen et al. fail to cure the deficiencies of Oshino with respect to independent claims 1, 8 and 13 and that even assuming it would have been obvious to combine the references, such combinations would not result in the claimed invention.

Reconsideration and withdrawal of the rejections over Oshino in view of Nishi et al. and Oshino in view of Dirksen et al. are respectfully requested.

In view of the above amendments and remarks, Applicants respectfully submit that all the claims are allowable and that the entire application is in condition for allowance.

VAN DER WERF et al. -- 10/618,264
Client/Matter: 081468-0304800

Should the Examiner believe that anything further is desirable to place the application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,
PILLSBURY WINTHROP LLP


JOHN P. DARLING
Reg. No. 44482
Tel. No. (703) 905-2045
Fax No. (703) 905-2500

Date: April 1, 2005
P.O. Box 10500
McLean, VA 22102
(703) 905-2000

Attachments:

Replacement Sheets (Figs. 1 and 3)